



# INSIGHT

June 1995  
Issue 8

## PRESIDENT'S CORNER

Jim Brill

As we approach the mid-year, uppermost on my mind are three events. The first event is our 5th Annual International Symposium, July 22-26 in St. Louis, Missouri. All indications are that we are on track for another successful symposium. The cooperative efforts of the NCOSE 1995 Symposium Planning Committee, the Midwest Gateway Chapter, McDonnell Douglas Corporation, PRC Corporation, NCOSE 1994 Symposium Planning Committee, NCOSE Corporate Advisory Board, and University of Washington merit our praise and THANKS! The overall quality and results of the symposium will be enhanced by the general membership's attendance and active participation. See you in St. Louis!!

The second significant event is the need to increase the depth and breadth of NCOSE's sponsorship. Corporate Advisory Board members, Marty Ross, Ken Ptack and I, have developed recommended actions for gaining a significant number of new NCOSE sponsors. These recommendations will be presented to the NCOSE National Board at the St. Louis symposium.

### Table of Contents

|                       |    |                      |    |
|-----------------------|----|----------------------|----|
| Committees and Boards | 3  | NCOSE Infrastructure | 20 |
| Working Groups        | 4  | NCOSE On-Line        | 21 |
| Local Chapter News    | 8  | General Information  | 23 |
| Editorial/Commentary  | 15 | Industry Briefs      | 25 |
| Calendar of Events    | 18 | 1996 Call for Papers | 26 |

sium. In the meantime, please do your personal best to "market" NCOSE to potential sponsors!

The third key event is reaching successful closure on our search for a new executive administrator and association management organization. Seven responses to NCOSE's Request for Proposal were under consideration. The National Board selected a new executive administrator and management firm in June. This selection is of vital importance to all NCOSE's stakeholders and its future growth and image. In the transition, Barney Morais and the MBA Center in Sunnyvale, California, continue to operate NCOSE's central headquarters.

# NCOSE

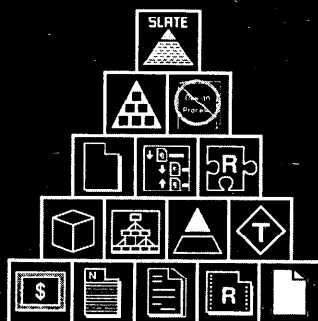
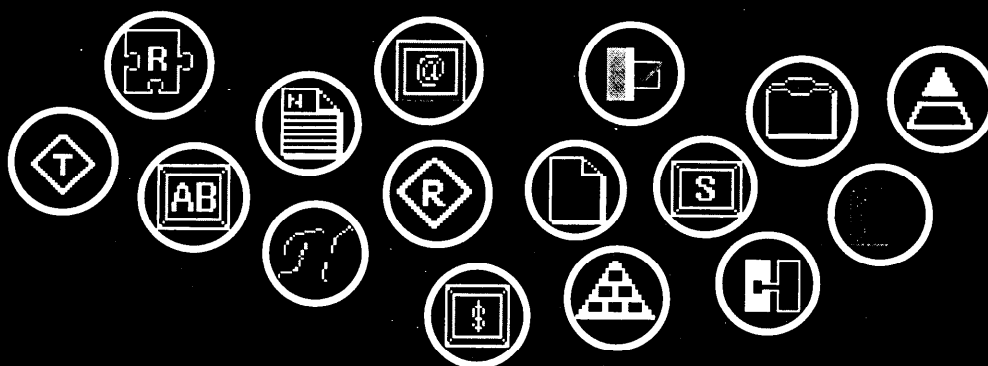
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# **COMMITTEES** **and BOARDS**

## 1996 Fiscal Year NCOSE Budget

Barney Roberts, broberts@hti.net

The Board of Directors has approved the fiscal year 1996 budget, which covers the period from May 1, 1995 through April 30, 1996. This budget was worked closely with members, officers and committee chairs who were assigned as budget line item (BLI) managers (see table at right).

New for this year is the delegation of authority and responsibility for program implementation and budget management. The BLI managers will be given complete authority and responsibility to execute the program approved by the Board of Directors and to manage their budget within the guidelines as approved. A purchase order will be established to facilitate the execution.

This should be a welcome change in the planning and budgeting process for NCOSE. We have tried hard to solve problems that we have had in the past. These include not knowing how much budget authority the committees had, not knowing how much was spent, unclear responsibilities, and unclear specifications or program objectives. Now, each responsible person has the authority to execute the program objectives of NCOSE and manage the budget allocated for each program element. Let there be no mistake — each BLI manager is completely responsible to the members of NCOSE to execute program objectives, commit funds, and manage budgets.

We must practice what we preach! With your support, NCOSE can continue to take steps towards becoming a modern, efficient, and effective organization.

## Local Chapter Affairs

Nancy Rundlet, nancy\_rundlet@protocol.zycad.com

The list of new chapter start-ups continues to grow! In addition to the 22 existing chapters, following is the list of locations that are interested in starting up a Local Chapter.

- ◆ San Gabriel Valley - Beth Snyder - (310) 922-0685
- ◆ Nevada - Richard Wagner - (702) 794-7844
- ◆ Iowa - Blake Andrews - (319) 395-4922
- ◆ Utah - Harleen Reed - (801) 774-7892
- ◆ Pennsylvania - Richard Pariseau - (215) 441-3342
- ◆ Illinois - Phil Corvino - (708) 512-7260
- ◆ Georgia - Dan Garvin - (404) 818-8658
- ◆ North Carolina - Kip Klish - (919) 850-6000
- ◆ Australia - Bill Parkins - 011-613-244-107

The Local Chapter Affairs Committee plans to have a meeting at the St. Louis NCOSE Symposium on Saturday, June 22 from 10:00 A.M. - 4:00 P.M. The location is not yet confirmed. All presidents are encouraged to attend. If the Chapter President is unable to join the meeting, it is recommended to

| BLI #              | Owner                                  | Name                      | FY '95 Allocation |
|--------------------|--|---------------------------|-------------------|
| ESTIMATED EXPENSES |  |                           |                   |
| 1.0                | Executive Director                     | Administration            | \$128,655         |
| 2.0                | Past President                         | Nominations and Elections | 5,000             |
| 3.0                | Chair, Communications Committee        | Operations                | 28,600            |
| 4.0                | Chair, Ways and Means Committee        | Operations                | 2,100             |
| 5.0                | Chair, Local Chapter Affairs Committee | Operations                | 0                 |
| 6.0                | Chair, Membership Committee            | Operations                | 4,500             |
| 7.0                | Chair, Technical Board                 | Operations                | 4,000             |
| 8.0                | Chair, Budget and Finance Committee    | Audit                     | 2,000             |
| 9.0                | President, Sponsoring Chapter          | 1996 Symposium            | 288,836           |
| 10.1               | President Elect                        | Winter Business Meeting   | 1,500             |
| 0.2                | President                              | Summer Business Meeting   | 1,500             |
| 11.1<br>4.2        | Journal Chief Editor                   | Journal Production        | 44,000            |
| TOTAL              |  |                           | 510,691           |
| ESTIMATED REVENUES |  |                           |                   |
| 1.0                | Executive Director                     | Dues, Proceedings Sales   | \$145,000         |
| 3.0                | Chair, Communications Committee        | Advertising Sales         | 12,000            |
| 9.0                | President, Sponsoring Chapter          | Symposium Fees            | 313,806           |
| 11.3<br>& 4        | Executive Director                     | Journal Sales             | 40,000            |
| TOTAL              |  |                           | 510,806           |

send another officer / representative to share in all the good ideas. For the Emerging Chapters, it is recommended to have either your Point of Contact or any of your interim officers. Due to popular demand, the topics to be discussed will be:

- ◆ Gaining commitment of officers and directors
- ◆ How to motivate volunteers
- ◆ Chapter programs that attract new members
- ◆ What is our "value added" to our local members
- ◆ Communication between chapters
- ◆ Pitfalls to avoid
- ◆ Social exchange and possible dinner together

I am looking forward to seeing you in St. Louis!

# WORKING GROUPS

## Systems Engineering Management Methodology

Rich Hat-well, Chair, [rhawell@mindspring.com](mailto:rhawell@mindspring.com)

Review of draft papers for this year's Symposium emphasized the need for a WG which focused on the balanced application of systems engineering elements on projects. We have, therefore, established a new WG to meet this need. We have grown rapidly since our beginnings in March, electing a Chair and Co-Chair (James Martin) by phone and e-mail. Our Charter, presented below, has been defined and forwarded to the Technical Board: *Create, coordinate, and disseminate methodology for planning, organizing, integrating, and controlling the technical aspects of a project throughout a system's life-cycle.*

We have adopted three initial projects: (1) provide an understandable/quantifiable foundation which enables program management to better comprehend and value SEM, (2) enable the effective application of SE elements in a balanced, value-added manner which best meets the technical management objectives of a project, and (3) **identify** and **codify** the body of SEM knowledge for access by NCOSE membership.

## Education and Training Committee

John Velman, Chair, [jrvelman@ccgate.hac.com](mailto:jrvelman@ccgate.hac.com)

The newly formed Education and Training Committee has established its goals and strategies, and has established several actions and intentions in order to meet these goals. This article provides a summary report.

**MISSION:** The mission of the committee is to provide national and international leadership in the collection, integration, and dissemination of system engineering knowledge, skills, and competencies, through education and training programs, and other appropriate activities.

### GOALS:

- 1 To accomplish the objectives, and address and resolve the issues, as assigned by the NCOSE Technical Board to the Education and Training Technical Committee.
- 2 To provide education and training focus for appropriate NCOSE working groups and technical committees.
- 3 To produce specific SE education and training products to disseminate to the community.

### STRATEGIES

- 1 To organize the Education and Training Committee as necessary into appropriate working groups to achieve the committee mission and goals.
- 2 To involve chapter education and related Committees in the work of the Education and Training committee.
- 3 To identify the customer needs for SE education and training.

### ACTIONS and INTENTIONS

The following represent action items as gleaned from meeting minutes, plenary session reports, and e-mail reports. Many of these are non-specific, and are more like intentions than actions.

- 1 Recommend E&T Program Integration with 1996 Symposium
- 2 Determine best mode of teaching skills and competencies
- 3 Complete plans and programs for 1995 academic workshop
- 4 Initiate effort to identify customer's SE education and training needs
- 5 Collect and disseminate a library of relevant papers in SE education and training
- 6 Organize the committee into appropriate WGs needed to accomplish mission
- 7 Circulate draft model systems engineering curriculum
- 8 Draft a WG information paper on SE course/instructor certification
- 9 Conduct feasibility study pertaining to ABET membership and accreditation issue for TB/BOD decision
- 10 **Define** process for establishing university student chapters
- 11 Distribute SE skills and competencies as documented in Volume 2 of 1994 proceedings

## Modeling and Tools Committee

Brian McCay, Chair, [bmccay@mitre.org](mailto:bmccay@mitre.org)

The Spring MTTC Working Meeting was hosted by the MITRE Corporation on 20 - 21 April at their facilities in Bedford, MA. The meeting was attended by 24 systems engineers representing 14 different companies. Highlights from the meeting include:

- ◆ Creation of the Modeling and Tools Technical Committee WWW **Homepage** within the NCOSE Homepage.
- ◆ Delivery of a Requirements Management Tools Working Group Paper and the Requirements Management Tools Database on the WWW (within MTTC Homepage) for demonstration at the '95 Symposium in St. Louis.
- ◆ Re-energizing of the Tools Integration Interest Group, which is addressing the CAB need: "Define the requirements for an environment for integrating system engineering tools."
- ◆ Briefing the CAB at the '95 Symposium of progress made by the Tools Integration Interest Group in meeting the CAB need
- ◆ Creation of the Model-Driven System Evolution Interest Group, whose mission is to: "... characterize and describe model-driven system evolution, and identify potential productivity and quality improvements throughout the life-cycle."

The items below provide a summary of the committee's meeting plans for the '95 Symposium:

- ◆ Meeting Agenda
- ◆ Complete listing of MTTC members
- ◆ Minutes from the Database Tools Working Group
- ◆ Minutes from the Tools Integration Interest Group
- ◆ Minutes from the Model-Driven System Evolution Interest Group

Anyone wishing to join this energetic group of systems engineers in pursuing their goals should plan to participate in the MTTC Working Group meetings in St. Louis. More information can be obtained directly from Brian McCay, MTTC Chair at [bmccay@mitre.org](mailto:bmccay@mitre.org).

## Call for Interest: Commercial Systems Engineering Working Group

Beth Clark, [ecclark@advtechuswest.com](mailto:ecclark@advtechuswest.com)

Since its inception, NCOSE has focused on systems engineering as practiced in Department of Defense and/or aerospace environments. More recently, NCOSE has begun to investigate and promote systems engineering in other government contracting environments, primarily through the Emerging Applications Technical Committee and Working Group. As the defense and aerospace industries have contracted, many NCOSE members are transitioning to non-systems engineering positions in the commercial marketplace. These members are seeking guidance on how to apply their systems engineering knowledge to the commercial environment; they are also learning of techniques and methods that may benefit the process and practice of systems engineering.

A small interest group has been meeting by e-mail over the past year to discuss these issues. One of the focuses of our discussions is the need to form a Commercial Systems Engineering Working Group (CoSEWG) within the Emerging Applications Technical Committee. This working group has two primary objectives. This first objective is to investigate how systems engineering techniques and methods can satisfy industry needs for effective and efficient product and process development systems. The second objective is to investigate industry techniques that can be applied to enhance the SE process or the application of the process.

The working group will achieve its objectives by understanding the needs of commercial practitioners and disseminating those needs to other parts of NCOSE. The working group will also articulate the value to commercial business of using existing resources in application of SE engineering techniques and methods to achieve cost and time savings while improving product quality.

If you are interested in the contributing to these efforts through the new Commercial Systems Engineering Working Group, please contact Beth Clark at [ecclark@advtech.uswest.com](mailto:ecclark@advtech.uswest.com), Bob Coyne at [bcoyne@atl.com](mailto:bcoyne@atl.com), or Bill Schoening at [m138022@sl1001.mdc.com](mailto:m138022@sl1001.mdc.com). We hope to hold our first meeting in St. Louis.

## Interest Groups vs. Working Groups

Eric Honour, Technical Board Chair, [ehonour@harris.com](mailto:ehonour@harris.com)

There continues to be some confusion about these two titles. Let me try to clear it up. Working groups are (inter-)nationally chartered groups that are trying to advance the purposes of NCOSE by developing specific products. Interest groups are those informal groups comprised of NCOSE members who share a common interest in a topic.

Working groups must receive a charter from one of the six NCOSE Technical Committees. They must agree to follow standard working and expected products are reviewed annually as part of the charter. Products of a Working Group may be published in accordance with the NCOSE Approval Process. Both the approval process and the operating procedures were summarized in the last NCOSE INSIGHT (March '95, pages 23 and 25).

Interest groups may be formed at any time and at any place by two or more members. We encourage but do not require them to affiliate with a Technical Committee. Many are within a local chapter so that members can meet regularly. They may or may not develop products. If they do develop products, however, their products must be submitted to a Working Group or Technical Committee for publication as an NCOSE product. This extra step is due to the lack of coordination and control over such products.

All groups chartered by a local chapter should be called Interest Groups unless they have also been chartered by a Technical Committee. If a local chapter desires to produce an NCOSE product, the chapter must coordinate with the NCOSE Technical Committees to prevent overlap and conflict.

These definitions have been informally in existence since 1993. At the January '95 meeting, however, specific procedures were enacted to formalize them. This is part of growing up — if we want EIA, IEEE, and others to respect our products, we must coordinate them!

## Requirements Management

Don York, [donald.m.york@att.com](mailto:donald.m.york@att.com)

The Requirements Management Working Group (RMWG) will publish two working group papers for this year's NCOSE symposium. The complete content of these papers will be found in the *NCOSE Working Group Papers Volume*. The first paper is entitled "What is Requirements Management?" and explores the nature of requirements management. The paper discusses the process within the overall systems engineering process, identifies requirements-driven program tasks, and defines interfaces between requirements management and other project disciplines.

The second paper originates from the Requirements for Requirements Management Tools (RMT) Team, a sub-group within the RMWG. The paper is entitled "Factors Influencing Requirement Management Toolset Selection." The intent of this paper is to provide an initial look at (1) identifying pro-

cesses driving toolset requirements and (2) defining toolset requirements. Future goals of the RMT team include defining requirements for modeling tools and for Requirement Management System (RMS) toolset integration with program and design management systems.

The work of the RMWG is on-going and there remains a lot to be done! Any NCOSE member is welcome to join the RMWG and contribute. We look forward to seeing you in St. Louis at the '95 Symposium working group meetings.

### Submittine Book Reviews

James Sanchez, Communications Committee, [jsanchez7@msmail4.hac.com](mailto:jsanchez7@msmail4.hac.com)

Would you like to share your views on a recent book related to systems engineering? Then, write a review for **INSIGHT**. The review should include a catchy byline to attract the reader's attention, and a one- to three-sentence first paragraph that entices the reader further. In the body of the review, include the title of the book, the name of the author, the publisher, the suggested price for a single copy of the book, the number of pages in the book, the name of reviewer, and 15-60 words about the reviewer. Due to space limitations the Book Review must be limited to one-half page of **INSIGHT**. Due to cost constraints, the reviewer bears the responsibility of purchasing the book. See box on page 16 for contact information and the deadline.

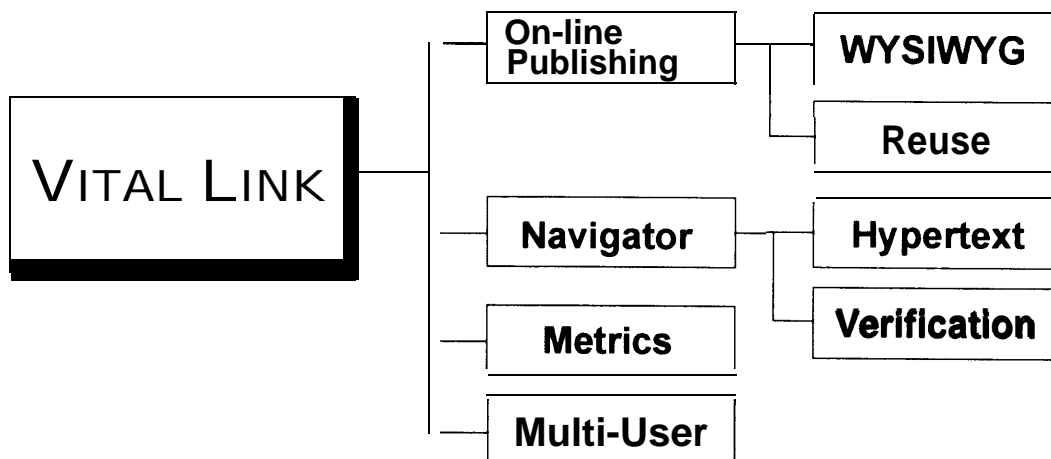
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## NCOSE Technical Committees and Working Groups

### Technical Board

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 Members: Larry Pohlmann, (703) 847-1 115,  
 pohldxx@ccmail.ca.boeing.com; Chairs of Technical Committees

### Emerging Applications Technical Committee

Chair: (vacant)

#### Emerging Applications Working Group

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#### Resource Management Working Group

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#### Commercial Systems Engineering

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### Measurement Technical Committee

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#### Good Practices Working Group

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#### Capability Assessment Working Group

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#### Concurrent Engineering Working Group

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#### Requirements Management Working Group

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#### Test and Evaluation Interest Group

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#### SE Management Methodology Working Group

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### Modeling and Tools Technical Committee

Co-Chairs: Brian McCay, (617) 27 1-5727, bmccay@mitre.org,  
 Roger Cook, (7 14) 44 1-9620, recook@hac2arpa.hac.com

#### Tools Database Working Group

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#### Tools Integration and Interoperability Interest Group

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#### Information Model and Process Interest Group

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*Interest Groups: Academic Development and Professional Development, Joseph Spigai, interim for both*

### SE Processes and Methods Technical Committee

Co-Chairs: Dorothy McKinney, Dick Wray

#### ML-STD-499B Handbook Working Group

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#### Terminology Working Group

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# LOCAL CHAPTER NEWS

## Liberty Chapter

William D. Miller, [william.d.miller@att.com](mailto:william.d.miller@att.com)

The Liberty Chapter (NJ/NY/PA) has held three successful programs this winter and spring and is planning six more programs for the balance of 1995. Attendance at the programs is averaging 35. The chapter is grateful to AT&T Bell Laboratories and ITT for providing their facilities as well as food and drink for the social hour.

The first program in 1995 was held Wednesday, February 1, 1995, at AT&T Bell Laboratories in Whippany, NJ. Newly elected chapter officers and directors were installed by Region IV Director James Martin. The evening's program focused on organizing local chapter groups working on technical tasks in the areas of metrics, requirements management, and tools.

The second program was held Tuesday, April 4, at ITT in Nutley, NJ. The program was a tools fest featuring users, not vendors, demonstrating their skills on DOORS from Zycad Corporation, Framemaker from Frame, Inc., RDD-100 from Ascent Logic Corporation, RTM from GEC Marconi, and Slate from TD Technologies, Inc.

The third program celebrated our second anniversary dinner on Thursday, May 11, at the Hanover Marriott in Whippany, NJ. The program featured a panel of systems engineering managers from Allied-Signal, AT&T, Dialogics, ITT, Northrop Grumman, and Zycad discussing the benefits and pitfalls of systems engineering in their organizations.

Upcoming programs in 1995 include presentations in June and July at AT&T Bell Laboratories in Hohn del, NJ; Allied-Signal in Teterboro, NJ; and Martin Marietta in the Philadelphia, PA area by authors presenting papers at the NCOSE International Symposium in St. Louis this July. These programs are intended to stimulate interest in NCOSE before the International Symposium. A golf outing and technical program is planned for August, a meeting of technical task groups in October, and a holiday dinner program in December.

*Bill Miller is President of the Liberty Chapter and is a Technical Manager at AT&T Bell Laboratories in Whippany, NJ. He can be reached at (201) 386-5339, [william.d.miller@att.com](mailto:william.d.miller@att.com).*

## Colorado Chapter

Beth Clark, point of contact, [ec Clark@advtech.uswest.com](mailto:ec Clark@advtech.uswest.com)

The Colorado Chapter would like to offer Bill Money our heartfelt best wishes as he takes on new challenges in new places. Bill has joined Loral Federal Systems in Orlando, Florida. We are thankful for all that he has done for Systems Engineering in Colorado.

The Colorado Chapter is looking for help. If you are interested in promoting systems engineering in Colorado, please contact Beth Clark at (303) 541-8287 or Russ Bogardus at (719) 593-5137.

## UK Chapter:

### 1st Annual Symposium

Steve Mallon, Chair, [Steve.Mallon@def.bae.co.uk](mailto:Steve.Mallon@def.bae.co.uk)

The UK Chapter has recently held its first annual symposium. This was something we promised ourselves at our inaugural meeting in September 1994, to give our technical programme a medium term focus, and to ensure that we quickly gave some tangible benefit to our members. Having come through the experience of organising the event, and been requested to write it up for *INSIGHT*, I have decided to present my *Twelve Rules for Symposium Organisers*. Of course, as with most rule sets, they're obvious with hindsight, and certainly not exhaustive.

*Rule 1: When first proposed the symposium will seem far in the future.* In September 1994, March 1995 seemed quite a way into the distance. We had plenty to get on with. An evening debate was organised, and planning started for a January launch meeting for our chapter Interest Groups. In November we did distribute a Call for Papers, and then returned to planning the January meeting: March was still a long time away...

*Rule 2: When you finally decide to start organising it, the symposium will seem very very near.* Following a successful January meeting, the Technical Committee sat down to select the papers (see rule 3). So we had the papers, but how were they to be presented? In fact things were not as bad as you may now be thinking. We already had the offer of an excellent venue from the Defence Research Agency at Malvern, so all we had to do was organise publicity, facilities, format of the day, catering, accommodation, symposium dinner (including guest speaker), keynote speaker and printing of proceedings, etc. There's nothing like a deadline though to generate progress, and a small organising group of four soon had the major arrangements falling into place.

*Rule 3: No matter how clear the instructions on your call for papers, several prospective authors will seem to have omitted to read key elements.* Returning to the papers for a moment, we had a good crop from which to select, but a majority deviated in some way from either the letter or the spirit of the Call, for example one or two outright marketing campaigns and extended abstracts which were anything but extended. Rather like exam results and sub-contractors bids, such observations are not too good an indicator of future performance, so that we had to think quite carefully about our selection. Knowing the author helps, but you're always open to being surprised, either way, by the unknown; and we were.

*Rule 4: A key speaker will drop out.* Always have a backup, or two, or three, or more generically say 20%! People move companies, must work on priority jobs, or don't get approval to speak. They're mostly very apologetic, but you still have the

problem, especially considering Rule 5.

*Rule 5: Any speaker who drops out will do so at the most inconvenient time.* If it's two weeks to go and you have not had any dropouts you're OK, right? Wrong! The most likely time for people to pull out is just at the point when obtaining a replacement will be next to impossible. In fact we had two last minute cancellations, one of which we were not able to overcome and from which we were rescued by a rapidly constructed, and excellent, paper: it's not all bad news.

*Rule 6: 20% of attendees will book in the first 80% of the available time.* As this was our first event, we were a little unsure of how many to expect. Our chapter membership was growing steadily, but our publicity was going to a wider audience. I guessed at 100, and budgeted to break even at 40. With two weeks to go, we were more or less at break-even, but we risked looking a little silly in a venue that could take 200+.

*Rule 7: 80% of attendees will book in the final 20% of the available time.* On the day we were 161! Being slightly late with some publicity and the time taken to secure approval to attend from within large companies were certainly factors, but I suspect that one could put publicity out too soon and that last minute arrival are always there to some extent. Being equipped to handle people who just turn up on the day is also a good idea!

*Rule 8: Instructions on paper preparation are difficult areas for system engineers to follow, especially when they involve use of wordprocessors.* This is strongly related to Rule 3. We asked for papers to be submitted in Word for Windows format, to a fairly strict format requirement, and most did indeed arrive in such. The variety of response provided was impressive, with the majority of papers unraveling in front of me as the first minor edit was attempted. The only answer is to provide authors with a compulsory style template. On a more important point, to the readership there were no major issues with length and content.

*Rule 9: Always include a highly controversial paper: system engineers like to argue.* Listening to papers on best practice, project experience, standards and specific methods and tools is important, but can be a little lacking in excitement. What is needed is some controversy. We included a paper which not only challenged basic tenets of conventional systems engineering philosophy at a fairly fundamental level, but was delivered with great style by the author. It really livened up debate and provoked more conversation and comment than any other paper. Isn't that what NCOSE is about?

*Rule 10: Remember to get speakers to sign an agreement accepting hideous punishment if they are caught reading papers verbatim.* No further explanation required: don't let it happen!

*Rule 11: Have a social event, and mix people up.* We preceded our symposium day with Interest Group meetings at the same venue, and arranged accommodation and a dinner at a nearby hotel. At dinner we had an excellent speaker, who presented a "cynical optimist's" view of Systems Engineering, based on

long experience. A seating plan which pseudo-randomly placed attendees to split company groups produced some inspired groupings across normal battle lines, stimulated debate, and doubtless presented new audiences for old stories.

*Rule 12: Having organised one symposium, lodge your offer to provide encouragement and advice to the fresh faces with new ideas who will take on the next year's event.* It was good fun. Seeing 161 people walking around clutching a good-looking copy of proceeding, and hearing them comment that it was a good event was certainly satisfying. The effort involved is considerable however, and if as I hope, we move on to bigger and better events in future years, the load will need to be spread.

So having done all that, how did things turn out? We had a well-attended symposium. We put the chapter on a sound financial footing. We provided a tangible benefit to members, at good value for money. We enhanced the reputation of NCOSE in the UK. Every chapter should have a symposium — but don't forget the rules!

## New England

Pat Hale, President-elect, [phale@draper.com](mailto:phale@draper.com)

Our newest corporate member, Raytheon, hosted our March 23rd meeting. Dr. Alan Graham of Product Development Consulting, spoke about "Radical Paradigms in Product Development." This talk presented some interesting and unintuitive study results requiring product development methodology in several prominent microcomputer hardware and software firms. Dr. Graham emphasized methods employed to deal with market and technology-driven requirements volatility in this fast-paced business environment. Techniques explored (with good metric support) ranged from early requirements freeze, coupled with extremely rapid development following the freeze, to a very fluid team-based model where changes in requirements are continuously evaluated for competitive advantage and rolled into the product during almost any stage of development. As might be expected, there was no single "right answer," and there were examples of both success and failure under each process. Aggressive technical management and tightly integrated development teams seemed to be stronger indicators of success than the particular development process selected.

On May 30th, chapter members met at the Hanscom Air Force Base Officers' Club to hear an excellent presentation from Lynda Rosa of MITRE on DoD acquisition reform, titled "A New Way of Doing Business — The Legacy of the \$100 Ash Tray." Lynda's involvement within the Systems Engineering Process Office at MITRE has provided unique insight into the acquisition reform process, and she presented a comprehensive picture of the history, driving forces and current trends and guidance that will profoundly affect many of us in our current and future work.

As we all get our bags packed for St. Louis, the 1996 Symposium planning process is gathering steam — the Mississippi waterfront may be the "in" place to be this July, but look out for a New England clambake for next summer!

## Detroit Tri-State

Charlotte A. Paul, Director of Communication, 76433.10 1 0@compuserve.com

The Detroit **Tri-State** Chapter co-sponsored two training courses titled "A Structured Approach to Requirements" in late April and May. The courses were co-sponsored by Zycad Corporation, and were well received by all participants. Classes were conducted by Dr. Richard Stevens, Technical Director of Quality Systems and Software, Ltd. (QSS).

Dr. Stevens was also the Guest Speaker at the April 27, 1995 Detroit Tri-State Chapter Meeting. Dr. Stevens presented an excellent, thought provoking program on "Translating Customer Communication in Customer Requirements" to an audience of approximately 40 automotive engineers. The presentation was punctuated with many of Dr. Stevens' personal experiences in handling customer requirements during his tenure with the European Space Agency. This successful chapter function was hosted by Ford Motor Company.

Our chapter is currently in the midst of elections for several Board of Director positions including, Director of Ways and Means, Director of Communications, and Secretary. Our next election cycle will begin in October, 1995, and we are always looking for interested individuals to help our chapter grow and flourish. We have something to offer anyone who is involved or interested in systems engineering. Our chapter's bimonthly programs rotate location among the major automotive companies and automotive suppliers in the Detroit area. For more information contact Joe Bedocs, President, (313) 594-3475.

## 1996 National Business Meeting in Melbourne, Florida!

Sue Dyson, esd@sps.com

That's right! The Space Coast Chapter and the Central Florida Chapter in Orlando, will co-host the 1996 National Business Meeting in Melbourne, Florida. We expect about 150 hard-working representatives from National, Technical Committees and all Local Chapters, as well as Corporate Advisory Board representatives, to be visiting the Melbourne area on January 24-26, 1996. During the three-day meeting, the organizational and technical direction of NCOSE will be reviewed and amended, and the work plans for 1996 will be discussed and approved. We are so pleased to participate in this excellent event, and to have the opportunity to be a part of the National Business Meeting.

**Monthly Meeting News.** LT. COL. David A. Anhalt, Director JSTARS Joint Test Force, is scheduled to make a presentation at the June meeting on "JSTARS Test Processes that Support Concurrent Evaluation and Development." The subject will address the processes to formally test a major system concurrent with the on-going development process. This looks to be an extremely interesting topic!

At the July meeting, members present technical papers to be given at the symposium in St. Louis. The Space Coast

Chapter is always looking for ideas for speakers. If you have any ideas for interesting speakers and topics, please contact Art Hollows during the day at 951-6257.

The Space Coast Chapter of NCOSE holds their monthly meetings on the first Tuesday of every month at the Officers' Club, Patrick AFB, from 5:30 - 7:00 P.M.

## Los Angeles

Susan Jones, Interim President, jones@courier10.aero.org

The Los Angeles Chapter ratified its Constitution and By-Laws in April and elected its first permanent Executive Committee on June 5, 1995.

The chapter and its committees have formulated their goals and plans for the coming year. In 1995, the chapter will focus on member services. In 1996, the focus will shift to encourage membership growth. These goals set the stage for planning and managing the 1997 Symposia. These coming two years pose a significant challenge which the chapter members look forward to meeting.

On May 22, 1995, the L.A. Chapter sponsored the presentation of a paper by Dr. A. Ruskin of Jet Propulsion Laboratories titled "Measuring System Development Progress: Acceptably Small Inch Pebbles." Dr. Ruskin's paper addressed the problems associated with schedule uncertainty when the schedule is composed of a mixture of tasks of short duration. The paper also discussed a method for estimating the project's status using a finer measure of progress, inch pebbles (as opposed to milestones). Douglas Aircraft provided the location for this talk.

On June 19, 1995 Dr. Richard Stevens delivered a presentation entitled "Getting Your Requirements In Order" at the L.A. Chapter meeting. Newly elected officers were installed at this meeting. Dr. Stevens also conducted a course entitled "A Structured Approach to Requirements" at The Aerospace Corporation on June 20-22, 1995.

The L.A. Chapter is planning a mini-symposium for presenters scheduled to appear at the National Symposium in St. Louis. This will be held on July 15, 1995 on the campus of the University of Southern California. It will provide presenters with an opportunity to "dry-run" their papers prior to the St. Louis gathering. It will also allow Los Angeles area members unable to meet in St. Louis in July to hear some of the presentations. In addition to the presentation of papers, Mr. Byron Smith has arranged for several systems engineering tool vendors to display their products. The chapter will provide a continental breakfast and sandwich lunch. Member donations will help cover expenses.

Several programs are planned for this fall. The current schedule is to conduct programs during the weeks of September 11, October 23 and December 4.

## San Diego

Rob Kane, Vice President, [kaner@cbs.corp.cubic.com](mailto:kaner@cbs.corp.cubic.com)

Our chapter is experiencing the same problem noted by Phil Altomare in the Membership Committee report in that we see new faces each month but depend for continuity on a small core of "true believers." Visitors arrive with a desire to learn and leave (with justification) if the lesson plan isn't on the table. To better shape our purpose, the San Diego chapter has undertaken to explore the role of Systems Engineering as it applies to alternative applications that will determine the shape of our world in twenty years.

There has been considerable movement over the past years relative to environmental concerns, and there is also NCOSE activity concerning alternative applications. We suspect that revolution not unlike the current quality revolution may be in the making, and we want to participate in it. As a means of opening our participation, Mr. Jorge Cebreros, the president of the non-profit Institute for Sustainable Agriculture in the Tropics, visited our April meeting and described his organization's project of agricultural development in northern Peru. The Tabaconas Valley Project has constructed and staffed a field station in the Amazon basin that supports local farmers in the production of organic coffee for export to the world market. This project includes agricultural improvements, utilizing biological control of pests and diseases and soil improvement through intensive composting and erosion control. Social and educational service to the relatively isolated local communities is included to insure that gains are not lost when direct supervision ends. The project has already certified fields as organically qualified through international audits (not unlike the ISO 9000 process) and currently exports coffee to the US. Jorge concluded by telling us that while his organization understands the technical problems encountered, it lacks the disciplines required to describe its progress quantitatively or a rigorous means to evaluate the best-value use of limited resources.

The chapter will undertake a sequence of open meetings that will outline the project objectives, current progress and identify steps that we can take to participate in the project and expand our understanding of the role of Systems Engineering as applied to sustainable development.

## Tri-Cities

Mary Simpson, Chair, [mjsimpson@ccmail.pnl.gov](mailto:mjsimpson@ccmail.pnl.gov)

The Tri-Cities Chapter held its first meeting on October 25, 1993. That meeting was attended by fifty-six people who came to hear about systems engineering from Dr. Brian Mar. Since that time the Tri-Cities Chapter has grown under able leadership, support and continued new interest in systems engineering. Today's membership numbers 47, and there are around 120 interested folks who rotate attendance depending on their current interests. The Tri-Cities Chapter's leader and president is Mary Simpson. With the chapter readying for the next election of new officers, Mary is getting ready to step down as

president, but will stay on as a board member in the position of Director. (Thank you, Mary!) The Chapter has held monthly meetings with many diverse topics.

The Chapter considers meetings to be a time of educational and networking opportunities. Topics covered include Systems Engineering Fundamentals, The NCOSE Capability Assessment Model, and SE Methods Compared, to name a few. The Chapter also holds monthly business meetings to keep the machine well oiled and operating smoothly.

The Chapter is involved in several other areas as well. At the present time the Tri-Cities NCOSE Chapter is involved in developing a Systems Engineering Certificate Program jointly with Washington State University, and is working as a local subgroup with NCOSE's Capability Assessment Working Group. The chapter also is discussing a local corporate advisory board and sponsors. There will be more on these topics and other areas in upcoming articles.

## San Francisco Bay Area

Ron Olson, President, [olsonr@gtewd.mtv.gtegsc.com](mailto:olsonr@gtewd.mtv.gtegsc.com)

The San Francisco Bay Area Chapter of NCOSE is four years old and has a large and active membership. With last year's sponsorship of the international symposium, our membership swelled to 140. The chapter's Board of Directors (BOD) wanted feedback from the membership to guide us in providing services and programs to benefit the members and the chapter. During the past several months, the SFBAC BOD have been conducting a survey of chapter members to provide a basis for establishing priorities for chapter activities during the coming year. This survey was conducted person-to-person (via telephone or in person) utilizing a questionnaire addressing nine specific topics, and required 10-20 minutes to complete. (New members joining after January, 1995 were not surveyed.) Each director was assigned a portion of the membership roster, and the results to date represent responses from approximately 40 percent of the membership. Here are some of the trends from our survey:

**Membership renewal.** Approximately 75 percent of the respondents indicated they had renewed their membership. Reasons for non-renewal included retirement, no longer involved with systems engineering activities, working in areas such as environmental management or other commercial industries for which it was perceived NCOSE currently provides insufficient value, and immaturity of NCOSE as an organization.

**Monthly Meetings.** Approximately 60 percent of the respondents indicated they had attended a local chapter monthly meeting within the past six months, with 80 percent of current members having attended. Of those attending nearly all indicated they found the meetings of value. Most indicated they can use the information presented, and that the opportunity for networking was valuable. Many said they would like to see more in-depth materials presented instead of high-level presentations. A few expressed the opinion that the same material was repeatedly presented. Additional interests included discus-

sions of real world experiences and lessons learned, and additional information on application of systems engineering to commercial applications. Our current approach to publicizing meetings via e-mail, fax, and hardcopy flyers seems to be effective in providing adequate notice of the monthly meetings. An excellent suggestion was to videotape presentations and organize a library of presentations.

**NCOSE Working Group/Committee activity.** Most of the members are not active in committees or working groups, and aren't interested, generally because of time or other priorities. Those expressing an interest in joining a working group wanted to work with working groups having a local presence.

**NCOSE membership value.** Nearly all of the current members considered NCOSE membership as a good value. The monthly local chapter programs were of greatest value, followed by publications, with the yearly symposia a distant third. Additional items mentioned included committees, and local and national networking. There was concern expressed that the quality of the symposium papers have decreased from year to year.

**Membership in other professional organizations.** Approximately two-thirds of the members currently belong to other professional organizations, including IEEE, AIAA, SOCE, ACM, AOC, and others. (This question was asked to provide information to support our current Professional Society Outreach Initiative which is promoting joint meetings with other societies which are of interest to our members.)

**Participation in chapter activities.** A few respondents indicated an interest in becoming more active in local chapter activities. Lack of time was indicated as a major factor. Some indicated they would like more information before making a decision.

**'95 Priorities for the SFBAC.** (Items were ranked high, medium, low by the interviewee.) Quality monthly meetings and tutorials closely ranked as the top two priorities members indicated for the local chapter. Rated significantly lower were growing the membership, expanded participation in working groups at the local level, and local membership communications. As a result of improvements in communicating information via e-mail and fax since the first of the year by our membership chairman Lew Lee, the more recent survey respondents indicate this issue is now a lower priority. Lowest on the list of priorities was expanded participation in national activities.

**Systems Engineering Information on the Internet.** Approximately two-thirds of the members at least have e-mail access to the Internet, with many having FTP, Telnet, or WWW access. The types of information they would like to have access to via the Internet included: SE standards, reference materials (library, databases), SE process information, articles, proceedings, SE bibliography, SE tool vendor information, member-

ship, abstracts, job opportunities, and communications with other systems engineers.

**Other comments.** Additional comments included concern that NCOSE has lost its focus on the value added via working groups, and the need for more corporate support to help overcome the limitations inherent in a volunteer organization. Several members indicated views that NCOSE needs to become more involved in commercial applications. Several members were interested in employment opportunities and wondered if NCOSE could assist.

**Summary.** The initial results of the SFBAC member survey have indicated some clear direction for the chapter officers and directors. The primary value to most SFBAC NCOSE members currently comes from the activities at the local level, with the monthly programs as the foundation. Although past programs have been well received, emphasis on information members can take back and use on their jobs needs to be increased. Examples include lessons learned from real-life experiences. Experience with the use of Systems Engineering in commercial applications continues to have high interest. Additionally, we need to ensure our initiative to provide half- or full-day tutorials locally is successfully implemented.

Our current efforts on growing the membership and improving communications need to be continued. We need to consider how to address the issue of perceived value of local participation in working groups, and the lack of time indicated as a major reason for not actually participating. Expanded participation in national NCOSE activities is currently not perceived by SFBAC members as a high priority for the chapter. However, it was indicated to be a mid-level priority for many members. A combination of National and local efforts is needed to address this issue. Quality products, professional operations, and effective communications will encourage member participation in NCOSE. Publications such as the Journal, the INSIGHT, and Symposium proceedings, increasing the quality of papers presented at the Symposium, products from working groups, and professional organization management will promote member interest. Local chapters need to assist in providing communication about national activities, and identify and support opportunities for local member participation.

Our members offered support, had suggestions, criticisms and expressed their concerns about the chapter and national organization. We are pleased that the respondents took the time to work with the interviewers and provided quality responses. If you'd like to receive a final report of the SFBAC membership survey (to be included in the next SFBAC quarterly newsletter), send your request to Lew Lee, SFBAC Membership (POB 35 10 ms 503, Sunnyvale, CA 94088 or e-mail [lew@svl.trw.com](mailto:lew@svl.trw.com)).

## 1995 NCOSE Officers, Board of Directors, and Local Chapter Contacts

**President:** Jim Brill, (408) 372-2473  
**President Elect:** Ginny Lentz, (301) 493-1440  
**Past President:** George Friedman, (818) 981-1917  
**Secretary:** Joe DeFoe, (301) 493-1451

**Treasurer:** Barney Roberts, (713) 333-0190  
**Executive Director:** Barney Morais, (408) 773-8701  
**Director-at-Large:** Jerry Lake, (703) 751-7987  
**CAB Chair:** Marty Ross, (617) 455-5775

| Regional Directors  | Chapter Name                  | City, State          | Contact        | Telephone/Fax                         |
|---|-------------------------------|----------------------|----------------|---------------------------------------|
| Region I:<br>Govt./Acad.: Scott Iverson, (206) 543-5398<br>Industry: Rich Mintz, (206) 394-4820     | <i>Seattle Metropolitan</i>   | Seattle, WA          | K. Peterson    | (206) 657-2776 / (206) 657-0071       |
|   | <i>Tri-Cities</i>             | Richland, WA         | M. Simpson     | (509) 375-4539 / (509) 375-6417       |
| Region II:<br>Govt./Acad.: Wayne Wymore,<br>(602) 299-6663<br>Industry: John Olsen, (310) 607-1293  | <i>San Francisco Bay Area</i> | San Francisco, CA    | R. Olson       | (415) 966-3524 / (415) 966-2585       |
|   | <i>Inland Empire</i>          | San Bernadino, CA    | A. Vickers     | (909) 862-0635 / (909) 862-3140       |
|   | <i>San Diego</i>              | San Diego, CA        | D. Clemons     | (619) 458-5215 / (619) 458-4766       |
|   | <i>Southern Arizona</i>       | Tucson, AZ           | H. Goodkin     | (602) 663-6751 / (602) 663-7299       |
|   | <i>Central Arizona</i>        | Phoenix, AZ          | J. Sivak       | (602) 585-6849 / (602) 585-7726       |
|   | <i>Los Angeles</i>            | Los Angeles, CA      | S. Jones       | (310) 336-8576 / (310) 336-6914       |
|   | <i>San Gabriel Valley*</i>    | Downey/Fullerton, CA | B. Snyder      | (310) 922-0685 / (310) 922-2000       |
| Region III:<br>Govt./Acad.: James Ray, (314) 263-1100<br>Industry: Dorothy Kuhn, (214) 575-2648     | <i>Colorado</i>               | Colorado Springs, CO | B. Clark       | (303) 541-8287 / (303) 541-6276       |
|   | <i>Midwest Gateway</i>        | St. Louis, MO        | D. Bristow     | (314) 232-7166 / (314) 234-6912       |
|   | <i>Texas Gulf Coast</i>       | Houston, TX          | J. Stecklein   | (713) 244-7146 / (713) 244-8108       |
|   | <i>North Texas</i>            | Dallas-Ft. Worth, TX | R. Case        | (214) 205-5306 / (214) 272-4689       |
|   | <i>North Star</i>             | Twin Cities, MN      | D. Walden      | (612) 921-6469 / (612) 921-6869       |
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|   | <i>Las Vegas *</i>            | Las Vegas, NV        | J. Clouet      | (702) 295-9144                        |
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|   | <i>Trr-State</i>              | Detroit, MI          | D. McClure     | (810) 680-5774 / (810) 680-5112       |
|   | <i>New England</i>            | Boston, MA           | B. McCay       | (617) 271-5727 / (617) 271-5309       |
|   | <i>Pennsylvania*</i>          | Philadelphia, PA     | T. Duffy       | (610) 531-5535 / (610) 962-2138       |
|   | <i>Illinois *</i>             | Chicago, IL          | P. Corvino     | (708) 512-7260 / (708) 512-7099       |
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|   | <i>Chesapeake</i>             | Baltimore, MD        | M. Walker      | (410) 850-0070 / (410) 850-0404       |
|   | <i>Huntsville</i>             | Huntsville, AL       | B. Boggs       | (205) 461-3177 / (205) 721-1943       |
|   | <i>Space Coast</i>            | Melbourne, FL        | T. Kabaservice | (407) 729-3278 / (407) 727-6888       |
|   | <i>Central Florida</i>        | Orlando, FL          | T. Remenick    | (407) 826-1777 / (407) 826-6891       |
|   | <i>Atlanta*</i>               | Atlanta, GA          | D. Garvin      | (404) 818-8658 / (404) 818-8100       |
| * Emerging Chapters   | <i>United Kingdom</i>         |                      | D. Hitchens    | 011 44 793 785225 / 011 44 793 782179 |

## Finally, the ultimate definition of requirements management :

**door** (dôr, dôr) *n.* **1.** An entrance or passageway.

**2.** A means of access.

**DOORS** (dôrz, dôrz') *n.* **1.** Dynamic Object Oriented Requirements System. The definitive requirements management and traceability software.

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**in-doors** (in-d&z; -dôrz) *adv.* **1.** In or into a building.

**InDOORS** (in-dôrz, -dôrz) *n.* **1.** Users' group for active users of DOORS.

*For a more detailed **definition** of DOORS, the ultimate Requirements Management and Traceability software for systems and software development, call your DOORS representative at **ZYCAD** or see us at the 5th annual NCOSE symposium tools exhibition, July 24-26. Users of DOORS are invited to attend the 2nd annual **InDOORS** users' group meeting on **July** 27, after the NCOSE symposium.*

Call **ZYCAD** at **1-800-453-4035**

### **"A Structured Approach to Requirements"**

A product independent intensive study of the theory and practice of capturing, organizing and using requirements.

**a three day seminar by Dr. Richard Stevens**

|               |                  |
|---------------|------------------|
| June 20 - 22, | Los Angeles, CA  |
| July 18 - 20, | Chicago, IL      |
| Sept 11 - 13, | Houston, TX      |
| Sept 18 - 20, | Washington, D.C. |

Book early as registration is limited. Ask about the NCOSE member discount.

# Editorial Commentary

## Letter to the Editor:

### No more Advertisements!

*Readers: In February of this year, the following comments were received from an NCOSE member who wishes to remain anonymous. The comments addressed advertisements in the December issue of INSIGHT - Ed.*

- 1) (the reader) . . . feels that ads cheapen the publication and can compromise the professional nature of the organization. This includes paid advertisements and job or help wanted ads.
- 2) The ads interfered with the flow of the publication and would have been disliked less if they had been grouped together at the back of the newsletter. The **Lake/Brill** ad was marked as a paid ad, but the i-Logix ad was not . . . (the suggestion is that) all ads have a very noticeable border around the entire ad to set it off from the rest of the publication and that all of them are identified as a paid advertisement. They also need to identify that the presence or absence of an ad is not an endorsement or comment on a vendors product or services.
- 3) The ads allow a cheaper method for a vendor to reach the SE community than attending the symposium as a vendor. Do we (NCOSE) want that? We have not let vendors give tool presentations at the symposium without buying a booth for that very reason. Also, given our restriction on using membership lists for marketing reasons, have we violated that restriction by accepting ads? Should ads be accepted only from NCOSE members or corporate sponsors?
- 4) The ads will become a source of contention as vendors jockey for favored positions. (An advertiser may request) to be on page 2, for example. If we let that happen, can someone usurp their position or if (an advertiser) keeps running an ad does that become their page?

In general, the problem was that (NCOSE has) this great publication. Do we really need \$60 from a few vendors and all the problems that paid ads entail for these few dollars?

#### *The Editor Responds:*

#### *Issue 1:*

- a. Many professional societies have newsletters/magazines that accept paid advertisements, so we don't feel we are unique in this respect.*
- b. The ads submitted have been professionally done. The editor has the right to reject ads deemed otherwise.*
- c. As far as "Job Wanted" ads from readers looking for work, we felt that providing a forum where SEs can look for SE-type work is an important service for our members. However, this feature has been requested only once.*
- d. Newsletter policy is that "Help Wanted" ads are paid for by the*

*requesting company.*

#### *Issue 2:*

- a. Newsletters for other societies do not group the ads. Furthermore, spreading them **out fulfills** one of our responsibilities to the advertisers — making their ads accessible to readers.*
- b. All **ads** are currently indicated as paid. There should be no reason to additionally state that NCOSE is not endorsing specific companies **if** the ad is **labelled** as a Paid Advertisement.*

#### *Issue 3:*

*For the St. Louis Symposium, a Vendor Booth is \$800, same as one full-page ad in INSIGHT. Additionally, a couple of advertisers/vendors have reserved ad space for several issues, thereby increasing their financial commitment to the newsletter, and to NCOSE, to several thousand dollars.*

*Thank you for your concern and compliments on INSIGHT. We hope that you'll continue to read, use, contribute, and otherwise stay active. Your comments ARE appreciated, and differences in opinion are noted and respected.*

*Comments from other readers are welcome.*

## Pushing the System Eric Honour, [ehonour@harris.com](mailto:ehonour@harris.com)

Despite a general rosy glow **from** our government economists, I hear alarm bells. A fair proportion of systems engineers seem to be out of work, looking for work, worried about their positions, or just concerned. What's going on?

A similar phenomenon happened in the 1970s. With the completion of the late John F. Kennedy's goal of landing and returning safely from the moon, and the conclusion of the Vietnam War, the government systems business suddenly became scarce. Companies fought for the remaining scraps in ruthless ways. Bidding became highly competitive, and companies had to find ways to weather the storm. That meant cutting costs.

Some of the first to go were the systems engineers. Despite the systems successes of the **60s**, managers could not justify paying 2x and 3x salaries for senior people. After all, the processes were now in place. Younger people could pick it up. Experience didn't matter all that much. By the time systems problems started to surface, the younger people would have their own experience. It was a great short-term solution.

This short-term solution created some of the systems disasters of the '70s and '80s. System definitions were vague, interface mistakes happened, and engineering design processes were uncontrolled. Software designers took the brunt of the blame because software functionality directly reflects the lack of definition. But we know where was the real fault.

Well, the cycle seems to be upon us again. Economists talk about conversion of the defense industry to a commercial products industry. Government budgets are aimed at debt reduction and welfare rather than systems investment. And systems companies are tightening the belts.

NCOSE can perform a much-needed service to our worried members by providing rational justification for systems

engineering. Why should companies not take the easy short-term solution of the 70s? What do the senior, experienced people offer that is essential to company success? Even short-term success?

*(This is the first of series of regular articles. Eric Honour's thoughts have appeared for the last year in the Space Coast Chapter newsletter.)*

## **A New NCOSE Balloting Process?**

John A. Marshall, [Marshallja%am3@mr.nawcad.navy.mil](mailto:Marshallja%am3@mr.nawcad.navy.mil)

In the realm of system engineering, standards based on actual measurements, of what constitutes the measure of a system, I am providing input to the NCOSE/IEEE/EIA balloting process.

The intent is to bypass no-value-added measures of the system engineering management process, and get on with a direct results-oriented approach for getting quality back in systems, and make a real quantum improvement for system engineering as a profession. This will require the system engineering managers to listen to those who understand system engineering equations, and to stand in for the integrity of measurement.

We still need managers, but we also need balance, and the application of TQL=>TQM in the System Engineering movement, per statistical measurement, that Deming and Taguchi intended.

The IEEE 498 comments are a beginning. Whereas the EIA-IS-632 approval process, with a lack of justification attached and poor management, caused this movement to fall through the crack the first time around. IEEE 498 also provided some good lessons learned.

Comments or Questions? Please reply by e-Mail.

## ***INSIGHT information***

This publication is a product of the Communications Committee, part of the National Council on Systems Engineering (NCOSE).

Editor: Valerie Gundrum. Contributing editors include: Ellen Barker, Beth Clark, Pat Hale, James Sanchez, Sarah Sheard, Bill Schoening, George Vlay.

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Note: When the new Executive Director is announced, please use the address and phone numbers listed in the article on page 21.

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## **NCOSE Mission, Goals, and Objectives**

NCOSE policy # BOD-200

### **Mission Statement:**

NCOSE shall foster the definition, understanding, and practice of World Class Systems Engineering in industry, academia, and government

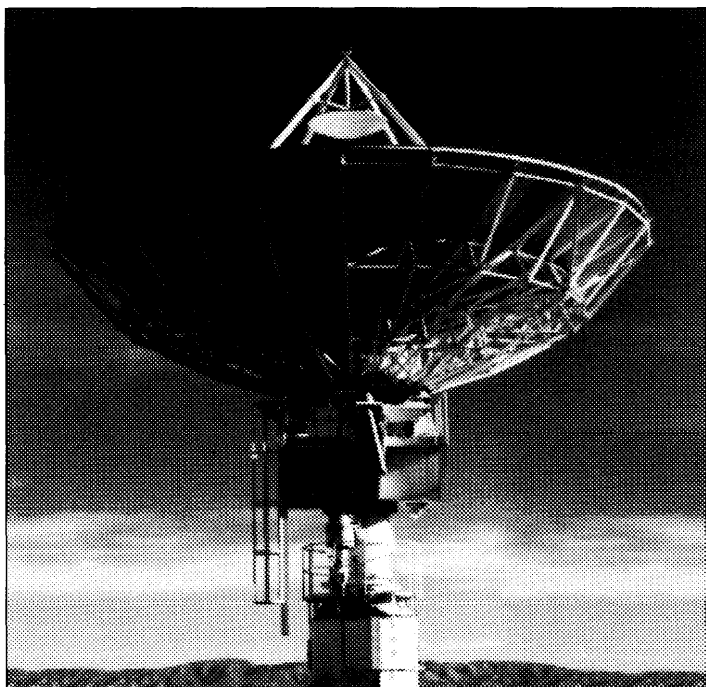
### **Goals:**

- ◆ To provide a focal point for dissemination of systems engineering knowledge.
- ◆ To promote collaboration in systems engineering education and research.
- ◆ To assure the establishment of professional standards for integrity in the practice of systems engineering.
- ◆ To improve the professional status of all persons engaged in the practice of systems engineering.
- ◆ To encourage governmental and industrial support for research and educational programs that will improve the systems engineering process and its practice.

### **Objectives:**

- ◆ NCOSE encourages conferences, workshops, seminars and courses, and may sponsor or co-sponsor such events as appropriate.
- ◆ NCOSE will provide its members with a membership listing and newsletter and will initiate bulletins, technical journals, and electronic bulletin boards, when feasible, to improve the dissemination of the systems engineering knowledge base.
- ◆ NCOSE will take actions to increase the funding of research and educational activities that enhance the practice of systems engineering.

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## Hardware Engineers

- Mechanical engineering, electronic packaging – Design experience with thermal and structural analysis capabilities
- Control systems engineering – Hardware and firmware for control of closed loop antenna tracking systems
- Digital designs – Use of DSP chips, algorithm development, embedded F/W development, use of programmable logic design, migration from FPGAs to ASICs, advanced custom logic, highdensity packaging using Multi-Chip Modules, Optical Interconnect technologies, PCM/TDM signal processing architectures
- Antenna design and development for specialized applications

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- BSEE (MSEE preferred)
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# CALENDAR of EVENTS

## July

**11 -** Detroit Tri-State Board of Directors Meeting (open to all interested parties)

Place/Time: Location TBD, 6:00-8:00 P.M.

Contact: Joe Bedocs, (3 13) 594-3475

**11 - San** Francisco Bay Area Chapter meeting

Topic: System Challenge Posed by the Desire for Reusability

Speaker: John E. Cox; and

Topic: Systems Engineering and Wilderness Area Management

Speaker: Theodore A. Dolton

Time/Place: 5:30 Social, 6:00 Presentation; GTE Government Systems, Mountain View, Bldg. 7 Auditorium

Contact: Lew Lee, (408) 743-4299, x5090, [lew@hh.sbay.org](mailto:lew@hh.sbay.org)

**12 -** Chesapeake Chapter meeting

Topic: Chesapeake Chapter Presenters at NCOSE Symposium

Speakers: (1) Charles Roe (JHU/APL), (2) Don Howe (NSA), (3) J.M.Hodapp and S.A. Hyer (JHU/APL), (4) James Urbanski (NSA), and (5) L. LaPlue and R. Garcia (Loral Federal Systems), R. Rhodes (SECON, Inc.)

Place: Johns Hopkins University Applied Physics Laboratory, Columbia, MD

Time: Dinner - 6:00 P.M., Meeting - 6:30 P.M.

Contacts: Don Kauffman, (410) 583-4130, [kauffman@ascs.aro.allied.com](mailto:kauffman@ascs.aro.allied.com), or Mark Walker, (410) 850-0070, x2057, [lmwalker@tasc.com](mailto:lmwalker@tasc.com)

**15 -** Los Angeles Chapter Mini Symposia

Topic: Presentation of Los Angeles area symposium papers and Systems Engineering tool vendor show.

Place/Time: Univ. of Southern California, 8:30 A.M.-1:00 P.M.

Contact: Dr. Robert Shishko, (818) 354-1282, [robert.shishko@ccmail.jpl.nasa.gov](mailto:robert.shishko@ccmail.jpl.nasa.gov)

**18 -** Washington Metropolitan Area Chapter meeting

Topic: Symposium Papers Preview

Place/Time: Tycon Tower, Tyson's Comers VA, 6:30-9:30 P.M.

Contact: Joe DeFoe, (301) 493-1451, [defoej@lfs.loral.com](mailto:defoej@lfs.loral.com), or Larry Pohlmann, (703) 847-1115, [pohldxx@ccmail.ca.boeing.com](mailto:pohldxx@ccmail.ca.boeing.com)

**22-26 -** Fifth Annual International Symposium of NCOSE

Place: St. Louis, Missouri

Contact: Engineering Professional Systems, (206) 543-5539, Fax (206) 543-2352.

## August

**8 -** Washington Metropolitan Area Chapter meeting

Topic: Systems Engineering for the 21st Century

Speaker: Dr. Harry Crisp

Place/Time: Tycon Tower, Tyson's Comers VA, 6:30-9:30 P.M.

Contact: Larry Pohlmann, (703) 847-1115, [pohldxx@ccmail.ca.boeing.com](mailto:pohldxx@ccmail.ca.boeing.com)

**8 -** San Francisco Bay Area Chapter meeting

Topic/Speaker: TBD

Place/Time: TBD

Contact: Lew Lee, (408) 743-4299, x5090, [lew@hh.sbay.org](mailto:lew@hh.sbay.org)

**9 -** Detroit Tri-State Board of Directors Meeting (open to all interested parties)

Place/Time: Location TBD, 6:00-8:00 P.M.

Contact: Joe Bedocs (3 13) 594-3475

## September

**12 -** San Francisco Bay Area Chapter meeting

Topic/Speaker: TBD

Contact: Lew Lee, (408) 743-4299, x5090, [lew@hh.sbay.org](mailto:lew@hh.sbay.org)

**13 -** Detroit Tri-State Board of Directors Meeting (open to all interested parties)

Place/Time: Location TBD, 6:00-8:00 P.M.

Contact: Joe Bedocs, (3 13) 594-3475

**18-20 -** Short Course: A Structured Approach to Requirements

Instructor: Dr. Richard Stevens, Zycad Corporation

Location: University of Maryland at College Park

Sponsored By: Chesapeake and Washington Metro Chapters

Contact: Joe Spigai, (3 10) 985-7200, [jspigai@nova.umuc.edu](mailto:jspigai@nova.umuc.edu)

**19 -** Chesapeake Chapter, 1996 Officer Nominations due to Nominating Committee

**20 -** Detroit Tri-State Chapter Meeting

Topic: IEEE Standard 1220 - Synthesis

Place/Time: Location TBD, Program Start 6:30 P.M.

Contact: Tricia Yates, (3 13) 337-9962

**20 -** Chesapeake/Washington Metropolitan Joint Chapter meeting

Speaker: Dr. Richard Stevens, Zycad Corporation

Topic: A Structured Approach to Requirements

Place: Johns Hopkins University Applied Physics Laboratory, Columbia, MD

Time: Dinner - 6:00 P.M., Meeting - 6:30 P.M.

Contacts: Don Kauffman, (4 10) 583-4 130, [kauffman@ascs.aro.allied.com](mailto:kauffman@ascs.aro.allied.com), Mark Walker, (410) 850-0070x2057, [lmwalker@tasc.com](mailto:lmwalker@tasc.com)

## Send your Chapter Reports

James Sanchez, Communications Committee, [jsanchez7@msmail4.hac.com](mailto:jsanchez7@msmail4.hac.com)

### Chapter presidents, let the world know about your local chapter!

Use *INSIGHT* as your means of communicating to NCOSE's members. Submit your 150-200 word article that includes accomplishments and recent events. Also, include upcoming dates, speakers, topics, place, time, and contact (name, phone, e-mail) for the *Calendar of Events*.

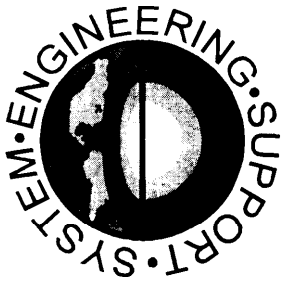
In addition, forward Chapter newsletters so that articles that are of interest to our readers can be included. The *INSIGHT* editing staff will gladly review and cull articles for future issues. A name, e-mail address and/or telephone number must be sent with the material. Electronic mail (ASCII/text) is graciously accepted and preferred. Send chapter reports as specified in the information box on page 16.

Doing System  
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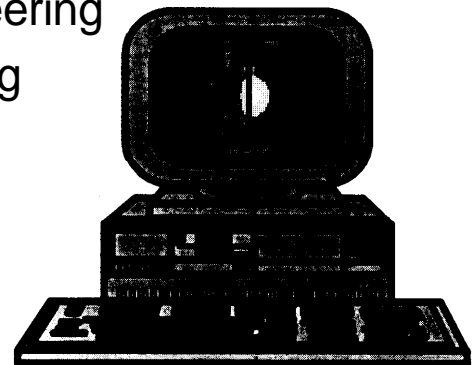


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# **NCOSE Infrastructure**

## **'95 Symposium**

Bill Schoening, [m138022@SL1001.mdc.com](mailto:m138022@SL1001.mdc.com)

As we get ever closer to the start of the 5th International Symposium on Systems Engineering here in St. Louis, Missouri, those tasks and events that once seemed so far into the future have either been completed or are upon us. The Proceedings have long since been sent to the printer, menus for meals have been selected, and meeting spaces have been allocated. Our three primary speakers — Ms. Deborah Castleman, keynote speaker; Mr. Scott Adams (a.k.a. author of Dilbert), dinner speaker; and Dr. Harry Crisp, luncheon speaker — are all making final preparations for attending the Symposium. Barring a resurgence of heavy rains, the dinner cruise on the Mississippi is on schedule and should be a delightful evening.

What does remain is for each of you to send in your registration forms, and then join us in St. Louis for five days with Systems Engineers from around the world. The Symposium committee is eagerly awaiting the culmination of two and a half years of planning and preparation.

## **NCOSE Journal**

Jeff Grady, [jgrady@ucsd.edu](mailto:jgrady@ucsd.edu)

The Journal Editorial Board is now fully staffed and the Associate Editors are recruiting reviewers. If you are interested in reviewing for the Journal, please contact the Editor listed below. The first six new papers are being reviewed now. Associate Editors are open to suggestions for updating papers from past Symposium Proceedings and Best Papers releases, as well as receiving new papers.

Members may submit papers directly to the Associate Editors listed. You will note that they are generally aligned with the committee structure of NCOSE. Your initial input may be via e-mail, but final input must be in paper and disk format as described in the inaugural issue.

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### **New Executive Administrator Selected**

Bill Schoening, m138022@SL1001.mdc.com  
Sarah Sheard, sheardsarah@lfs.loral.com

Following an evaluation of the seven proposals submitted in response to our request for a new Executive Administrator and association management company, the firm of Shirley Bishop, Inc. was selected. The contract has been finalized, and we expect the transition to be complete within the next couple of months. In the meantime, here is some background information.

Shirley Bishop, Inc. currently provides administrative services to eighteen other professional and trade associations, in a variety of fields and with national, regional, and local constituencies.

Some of Ms. Bishop's responsibilities will include maintaining the membership database, communication with prospective and new members, processing membership renewals, mailing of **INSIGHT** and other publications, support to the Board of Directors and the symposium, maintenance of and reporting on detailed budgets, ensuring the chapter-central NCOSE interface is handled professionally, and processing accounts payable and receivable. Ms. Bishop has already established an e-mail address and an 800 number for NCOSE (shown below.) The new address for NCOSE will be:

National Council on Systems Engineering  
United Airlines Building, Suite 804  
2033 Sixth Avenue  
Seattle, WA 98121  
Tel: (206) 44 1-6020 or 1-800-366- 1164  
Fax: (206) 44 1-8262  
E-mail: incose@halcyon.com

When the transition to INCOSE is complete, simply substitute "International" for "National" in the address. What is currently called the "NCOSE National office" will be referred to as the "INCOSE Central office," since "international office" seems to imply there is a separate "domestic office."

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## **NCOSE On-Line**

### **NCOSE World Wide Web Debut**

Pat Hale, phale@draper.com

As promised in the last issue of **INSIGHT**, the Communication Committee's "Web Team" has established a WWW page for NCOSE, providing a foundation for what will grow into a comprehensive on-line resource for members, committees, working groups and the Systems Engineering community at large. The NCOSE home page is hosted by USWest, and can be found at URL (Uniform Resource Locator):

<http://usw.interact.net/NCOSE/>

This home page is continually under revision to add new features, so check it regularly to find out what's new. Future additions will include direct links to other NCOSE and Systems Engineering servers, pages for working groups and committees, and on-line membership information, including application forms. A vendor has been placed under contract to support editing and mark-up of source material for posting on the home page.

If you have information you would like to see added to the home page, please contact either Pat Hale at (617) 258-4942 (e-mail: [phale@draper.com](mailto:phale@draper.com)) or Beth Clark at (303) 541-8287 (e-mail: [eclark@advtech.uswest.com](mailto:eclark@advtech.uswest.com)).

### **Robert's Rules For E-Mail**

Eric Honour, ehonour@harris.com

Last year, the Technical Board tackled the problem of how to hold effective meetings over e-mail. We developed a modified version of Robert's Rules that may be useful for other groups. We have been using these procedures since last May and have taken a number of issues to completion with them. So here they are, offered for your consideration and use. Issues fall in one of four categories, and progress through the categories over time:

- ◆ Potential Issues
- ◆ Active Issues
- ◆ Proposed Solution Issues
- ◆ Decision Issues

Priority in discussion and response is normally given to issues that are furthest along in the process, to facilitate rapid resolution.

1. Any member can suggest Potential Issues by sending them to the chair. The Secretary maintains a list of Potential Issues, with any comments received so far.

2. From time to time, the group prioritizes Potential Issues to elevate to Active Issues by a "chip voting" process. The Chair disseminates the list of Potential Issues with a call for

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vote. Members respond by “spending” five votes per member to issues in the list. Multiple votes may be recorded for a single issue. Members may also provide comments on any or all of the issues. Alternates may participate in these selection votes. In some circumstances, the Chair may elevate an issue to Active for rapid action without such prioritization.

3. The Secretary maintains a list of the current (and past) Active Issues, along with any comments and discussion received on each issue. Each Active Issue is numbered and tracked.

4. Members broadcast opinions on each Active Issue to all other members. Each opinion is identified as belonging to a specific issue by number and name.

5. At an appropriate time, Chair proposes a solution to the issue in clear enough terms that it could be voted yea or nay. The solution must be based on the discussion so far. The Chair may alternatively request that an appropriate member create

such a solution. Proposal of such a solution elevates the issue to a Proposed Solution Issue. Discussion continues concerning the proposed solution.

6. At an appropriate time, any member may call the question by e-mail message to all. If there are no objections to a vote, the Chair then calls for a vote via another e-mail message. The call restates the proposed solution to the issue. Such a call for a vote elevates the issue to a Decision Issue.

7. There is a deadline for each vote as a part of the call. Members send votes by e-mail. A quorum must be reached by the deadline for the vote to be valid. The Secretary records the results of the vote. Members agree to abide by and to support the results of each vote.

Using these procedures, we have handled meaty issues in as little as two weeks. Of course, it requires cooperation and commitment of the members — as do any operating procedures!

## GENERAL INFORMATION

### The Systems Engineer's Vision

Systems Engineers maintain an appreciation for, and a basic understanding of, the entire spacecraft or system, and how their assigned subsystem (or analysis or test) contributes to the system.

Systems Engineers provide leadership in identifying, analyzing, and rectifying potential problems and discrepancies in the system and subsystem interfaces. When problems arise, Systems Engineers troubleshoot and document the solutions of the problems.

Systems Engineers ensure adequate definitions for system and subsystem analysis and test requirements. Systems Engineers ensure that these requirements flow to the proper hardware, software, analysis, and test areas; and are understood, implemented, and verified.

Systems Engineers demonstrate knowledge, innovation, and common sense in their work.

Systems Engineers design cost efficiency, testability, operability and producibility into every phase of their work.

Systems Engineers continuously improve, technically and managerially.

*Source: Space and Communications Group System Engineering Process Manual, Hughes Telecommunications and Space Company, April 1992. Used with permission.*

### Another Point of View:

“What is systems engineering anyway, other than just damn good engineering?”

George P. Richardson, Rockefeller College of Public Affairs and Policy University at Albany • State University of New York

### Nine Survey Tips for Systems Engineers

Sarah Sheard, Loral Federal Systems, and Mona B. Zirkes-Falco, Hughes Aircraft Company

Systems engineers often write surveys or use survey data in their work, partly because surveys deal with the same soft issues as systems engineers: opinions, desires, and preferences. However, most systems engineers do not have training in statistical analysis. The following tips are based on a surveys course at Hughes Aircraft Company, and the booklet, “What is a Survey,” published by the American Statistical Association (ASA).

**TIP NUMBER 1:** Give a survey for the right reasons. The following are wrong reasons (reasons 3 and 4 are wrong if they are the ONLY reasons):

- 1 You want to prove to someone that lots of people agree with you.
- 2 You don't know what you are doing and hope other people will give you a clue.
- 3 You want hard data to use as **metrics**.
- 4 You want to get a baseline fast.

The first reason insults your audience. Never give a survey unless you do not know the answer. If one answer is “right” it will be obvious from your questions, and you will wreck your credibility.

The second is dangerous in that survey takers justifiably expect someone taking up their time will do something useful with the data. To use it just to “get a clue” violates that trust.

The third is unreal: survey data is only “hard” within limits, known to an accuracy only if the survey is performed strictly according to statistical rules. If you don't know them, you cannot claim your data is “hard.” (Of course, if you do the survey well, for other reasons; metrics and a baseline can come

out of it).

The fourth is unrealistic. You can have good data or fast data, but not both. Nor is survey data “cheap” to get. This brings us to:

**TIP NUMBER 2:** Have goals for the survey, and sub-goals, and write one question for each goal. Make it as simple and plain as possible, within the constraints of obtaining meaningful data. Try to guess how others will misconstrue the meaning of the question and rewrite the question to prevent misunderstanding.

**TIP NUMBER 3:** Insist on methods that will get you quality data. If you don’t care about having good data, don’t do the survey. Considerations include:

- 1 Choose a representative sample of your target population. See the ASA booklet; if your sample is a convenience sample (those who are easy to reach), your data will reflect only those who are easy to reach. If they are more convenient than the average, they are probably not representative in other ways.
- 2 Make it easy for those surveyed to fill out the answer. For example, instead of having people number from 1 to 5, or worse, from 1 to 10, attach English words to each of the choices and give as the answer key abbreviations of the words: e.g. SA for Strongly Agree and SD for strongly disagree, instead of 1 and 5. Odd numbers of answers are better than even since the middle one is perceived as “neutral.” Five or maybe seven gradations are best.
- 3 Use reproducible scales. Reproducibility is critical for good data. In other words, if a person answers a question a certain way right now, he or she would give the same answer tomorrow or an hour from now, too. Research has shown that certain answer scales are better than others at reproducibility.

The SA-A(gree)-N(eutral)-D(isagree)-SD scale tests out as pretty reproducible. Less reproducible is Excellent-Good-Neutral-Fair-Poor, but this is still better than something you might make up on the spot, like “Enthusiastically, Agreeably, Acceptably, Reluctantly, Not” in response to a question like, “How much would you support this proposition?” **DO NOT MAKE UP NEW SCALES.** Rewrite your questions so that you can use tested scales for the answers.

**TIP NUMBER 4:** Be sure to separate the response of “no opinion” from “neutral.” These are very different and you don’t want people who don’t know what they think to be confused with people who think “neutral.”

**TIP NUMBER 5:** Be careful not to raise expectations that you can’t follow up on. I (Sarah) was once was persuaded not to ask, on a workplace-rewards-and-recognition survey, how re-

spondents would rank salary increases compared to verbal acknowledgment, etc., as motivators. There was no possibility that as a data collector, I could influence the amount of money available for increases in any way, and people would feel justifiably betrayed if they all wanted increases and couldn’t get any.

**TIP NUMBER 6:** Plan your data analysis. How much data will you get back? Will you cross-correlate answers to question 1 with question 5 (Of those who own a horse, 63% eat Wheaties)? Will you group “Strongly Agree” and “Agree” answers together (45% agreed and 55% did not), or will you try to find an “average” rating (Bilingual parents averaged “Satisfied” but parents speaking only one language averaged “Neutral”)?

**TIP NUMBER 7:** Consider other methods than mailing surveys out and getting mail answers back. People get tired of being surveyed by others, especially now that we receive customer satisfaction surveys from places of business every week or even every day. If you use a different method you might get better response.

Other methods include focus groups, collecting people in a room and proctoring them while they take the survey, e-mail or other electronic surveying, and telephone surveys. If you use the first two you will need to involve survey professionals. If you use the last two, remember to keep them brief, maximum five and preferably three minutes on a phone survey and maximum three screens, preferably less, on an e-mail survey.

**TIP NUMBER 8:** Test the survey before you give it. Ask some people who are NOT in your random sample to take the survey, and afterwards ask them what they thought of the survey itself. What did they think about the way the questions were phrased? Were they easy to answer?

Time their responses so you know how long it takes to answer. Ask how they interpreted the question, were the answers easy to understand, was there something missing?

And finally:

**TIP NUMBER 9:** Be sure to do something visible with the data. Consider briefing the respondents on the results. Ideally, use your data to make life better for the respondents (“65% of respondents prefer diet sodas, so we’ll tell the cafeteria to quit sending ¾ regular and ¼ diet at meetings!”).

If you make your surveys focused, short, and reasonably unambiguous, your audience will appreciate the consideration you give them. This makes them willing to think more about their answers, which improves your chances of obtaining useful data. Finally, if you then use the survey results to do something with the data, they will be happy to participate on the next well-run survey.

## INDUSTRY BRIEFS

### Engineering of Computer Based Systems (ECBS): First Call for Papers and Participants

Markus Voss, mvoss@ira.uka.de

IEEE Computer Society Technical Committee on Engineering of Computer Based Systems (ECBS), University of Karlsruhe, Karlsruhe, Germany announces an International Symposium and Workshop on Engineering of Computer Based Systems (ECBS). The symposium will be March 11 - 15, 1996 at the Graf-Zeppelin-Haus Conference Center in Friedrichshafen, Germany.

The symposium is the ninth in a series of international meetings dedicated to formulating and advancing methodologies and techniques for engineering of computer based systems (ECBS). This emerging discipline is devoted to design, development, deployment, and analysis of complex systems comprising heterogeneous, distributed, software, hardware, communication, and other components. It aims at integrating systems engineering and engineering fields like software, electronics or communications into a total engineering discipline for computer based systems.

Previous meetings and Technical Committee Working Groups have identified critical areas such as information and process models, architectures, tools, standards, training and education, and forensic ECBS and progress has been made since.

Contributions are sought that advance the ECBS state-of-the-art and practice, primarily in the following (and in related) areas:

- ◆ Requirements elicitation and analysis
- ◆ Systems analysis and modeling
- ◆ Systems design and interface management
- ◆ Architectures and design templates
- ◆ Domain modeling and analysis
- ◆ Co-design
- ◆ Reengineering and reuse
- ◆ Development processes and process optimization
- ◆ Information management and traceability
- ◆ System assessment, testing and metrics
- ◆ Systems simulation
- ◆ Case studies
- ◆ Standards
- ◆ Reliability, safety, dependability
- ◆ ECBS infrastructures (tools, components, environments)
- ◆ Training and education

#### SUBMISSIONS

Five (5) copies of extended abstracts (2000 words) must be received by October 15, 1995 (hard copies only). The abstracts will be refereed and authors will be notified of acceptance by December 15, 1995. At least one author of each paper is expected to present the paper at the conference. Proceedings will be available at the conference and published with the IEEE.

Any technical inquiries and all registrations should be directed to the General Chair. All submissions should be directed to the Program Chair.

#### TIMETABLE

Extended Abstracts Due: October 15, 1995  
 Notification of Acceptance: December 15, 1995  
 Formatted Papers Due: January 15, 1996  
 Symposium: March 11 - 13, 1996  
 Workshop: March 14 - 15, 1996

General Chair: Gerhard Schweizer  
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U.S. Chair: Jerzy Rozenblit

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Up to date information about the symposium and workshop is available via the World Wide Web at:

<http://i50s19.ira.uka.de/ecbs96.html>

### 1995 Systems Thinking in Action Conference

LeAnne Grillo, leanne@world.std.com

This conference will be held September 18-20 in Boston.

Keynote and large session speakers include Peter Senge, Peter Block, Karl-Henrik Robert, Danah Zohar, Bill Isaacs, Arie de Geus, Sandra Seagal and David Home. There are over 50 concurrent sessions that provide a variety of application case studies and skill-building workshops. The theme of the conference is "Building Organizational Learning Infrastructures."

For those on the Pegasus Communications snail mail list, you should be receiving your brochure in the next two weeks. For others, please contact Pegasus Communications at 617-576-1231 for a brochure. If you have any other questions, send a note by e-mail to: leanne@world.std.com or call the number above.

Host's Note: This conference has been "Sold Out" well beforehand for the past couple of years. If you want to attend, it is suggested you register early. This is a favorite conference because of the quality of the attendees,



## C-ALL FOR PAPERS

**"Systems Engineering: Practices and Tools"**

Sixth Annual International Symposium of

**The National Council on Systems Engineering**

Hosted by the New England Chapter

Boston, Massachusetts

July 7-11, 1996

The symposium theme for 1996 is "Systems Engineering: Practices and Tools." Papers describing how "intellectual tools," as well as computer-based tools, facilitate systems engineering over the complete life cycle are especially welcome. We are making a concerted effort to tie the vendor community closer to the technical program. With this in mind, a "partnership track," located in the vendor exhibits area, will be offered. This new track encourages speakers to demonstrate tools they are using to define, implement, automate, and reinforce systems engineering practices for a broad range of application areas. Authors should indicate the appropriate topic of their paper. Topics include (but are not limited to) the following:

**New Concepts/Methods and Their Impact**

- Integrated Product Development
- Computer-based tools and prototypes
- Process reengineering
- Systems of systems-management
- TQM and QFD

**Underlying Technologies**

- Entity-Relationship-Attributes-Models
- Object-oriented analysis & design
- Client-server architectures
- Data base management
- Open systems environment

**Tools and the Engineering Culture**

- Management concerns
- Acceptance by the engineer
- In-house vs. COTS tools
- Measures of success to guide tool use

**Product Development Strategies**

- Capturing market requirements
- Time-to-market strategies
- Cost, schedule & staff forecasting
- Metrics to measure product success
- Reengineering of legacy systems
- Automated generation of software or board layout

**Integrated Environments**

- Data commonality & repositories
- User data access and version control
- Configuration management
- Data exchange among sites
- Interoperability with CASE and CAD/CAM/CAE tools

**Application of Vendor Tools**

- Analysis, modeling & simulation, management
- Cross-discipline tool interaction
- Collaborative environments
- Applications: energy, biomedical, DoD, commercial

Prospective authors are required to submit 2 copies of a preliminary paper *without author names but with paper title* (papers will be reviewed anonymously), 4-8 numbered pages in length, with an abstract as the first section. ON A SEPARATE SHEET include: paper title, authors' names, business affiliations, addresses, phones, faxes, and e-mail; contact name, contact's phone, fax, and e-mail. Please be sure to include complete address information; your paper status notification depends on it. No faxed or e-mail papers will be accepted. Upon acceptance, paper format requirements will be sent to the contact. Authors are eligible to be accepted as either technical session presenters or poster session presenters. Authors interested in the partnership track should clearly indicate whether a demonstration will be part of their presentation. Technical session paper presentations are planned for 20 to 30 minutes, to include a 5-10 minute question and answer period.

**Papers presented at technical sessions or at poster sessions will be published in the 1996 NCOSE Symposium proceedings.**

**TECHNICAL QUESTIONS:**

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**DUE DATES:**

Draft Paper Submission: Sept. 30, 1995  
Acceptance Notification: Dec. 31, 1995  
Photo-ready Paper Due: March 15, 1996



**“Systems Engineering: Practices and Tools”**  
 Sixth Annual International Symposium of  
**The National Council on Systems Engineering**  
 Hosted by the New England Chapter  
 Boston, Massachusetts  
 July 7-11, 1996

NCOSE's Sixth Annual International Symposium, a tutorial program, and working sessions for the administrative and technical committees and working groups will be held in Boston, MA, July 7-11, 1996.

The Systems Engineering tutorial program is scheduled for Monday, July 8, 1996. At this time, we are soliciting proposals for technical tutorials that will be of general interest to symposium attendees. We hope to have several parallel tutorials, each one-half day or full day in length, to form a complete program for the day. We will, of course, attempt to schedule the tutorials to maximize attendance.

Persons wishing to submit a tutorial proposal should submit: a technical abstract (of no more than one page), a detailed outline, a description of the targeted audience, what is expected to be learned from the tutorial, and a brief biographical sketch. Proposals for both half-day and full-day tutorials will be considered. Suggestions of persons who you think should be contacted about presenting tutorials should be sent directly to Dr. Terrell.

Criteria for tutorial selection include the following:

- in keeping with the purpose of INCOSE: "...to foster the definition, understanding, and practice of world class systems engineering in industry, academia, and government."
- address improvement issues pertinent to the dynamics of today's business needs.
- not a sales presentation for the presenter or the presenter's company and does not contain proprietary information.
- designed to be educational, instructive, and provide value to the attendees.

Compensation: Should your proposal be accepted, the compensation policy will be discussed at that time.

**SEND PROPOSALS TO:**

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 GTE Government Systems  
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 Needham, MA 02194  
 Tel: 617-455-4419  
 Fax: 617-455-5294  
 Email: [terrell.john@mail.ndhm.gtegsc.com](mailto:terrell.john@mail.ndhm.gtegsc.com)

**DUE DATES:**

Tutorial Proposal Submission: Nov. 1, 1995  
 Acceptance Notification: Dec. 31, 1995  
 Brochure Description Due: January 15, 1996

## The Systems Engineer's Lament

"There's something wrong, let's call upon  
The Systems Engineer."

"We're seeing an anomaly,  
And we're sure glad you're here."

"Can you tell me what is wrong?"

"Of course not, we don't know!  
But when we push this button here,  
That arrow moves too slow."

Software, hardware, interfaces,  
What could be the matter?

"And how long since this stripchart pen  
Developed such a chatter?"

"Oh that, we saw that yesterday,  
We figured it was 'down'.  
We're sure it's not related to  
That other thing we found."

Investigations late at night  
Became the rule quite soon.  
The Systems Engineer's phone mail  
Was full each day by noon.

"The program's clock is ticking now,  
And every minute's dear.  
You'd better fix the problem fast —  
We'll stand and watch from here."

The Systems Engineer's domain  
Was broad, and that was good:  
Code, schematics, models, flows,  
All must be understood.

One by one the pieces were  
Determined to work right.  
The interfaces were in doubt:  
Things fit, but, well, not quite.

A resolution formed among the  
Experts and designers:  
It would improve performance and  
Make resolution finer.

A part would be replaced with one  
That had much better shielding.  
A software fix was coded that  
Allowed for bend and yielding.

"Goodbye," they said, "You helped us to  
Identify the cause.  
But really that guy Jim you called  
Deserves the most applause.

For he's the one who found the way  
To fix that broken knob.  
Too bad you guys don't have a real  
Engineering job."

Sarah Sheard, May 22, 1995

**NCOSE INSIGHT Challenge!** If you have an original cartoon (your own, of course!) that you would like to see published, send it to the editor for consideration. Please ensure that your entry is professional and pertinent to systems engineering. Our goal is one cartoon per issue. Thanks to Stan Long for another contribution!

### SYSTOON/by Stan Long

